

APPROVAL TO CONSTRUCT/MODIFY
A STATIONARY SOURCE

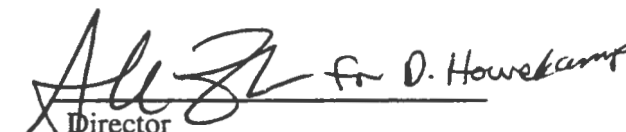
In compliance with provisions of the Clean Air Act, as amended (42 U.S.C. 7401 et seq.), ENRON Development Piti LLC is granted approval to construct and operate two 45 megawatt diesel engine electric generators, waste heat recovery boilers, and a steam turbine generator to be located at the Piti Power Plant, Guam, in accordance with the plans submitted with the applications and with the Federal regulations governing the Prevention of Significant Air Quality Deterioration (40 C.F.R. 52.21) and other conditions attached to this document and made a part of this approval.

Failure to comply with any condition or term set forth in this approval will be considered grounds for enforcement action pursuant to Section 113 of the Clean Air Act.

This Approval to Construct/Modify a stationary source grants no relief from the responsibility for compliance with any other applicable provision of 40 CFR Parts 52, 60 and 61 or any applicable Federal, State, or local air quality regulations.

This approval shall become effective immediately upon receipt by ENRON Development Piti LLC.

Dated: November 24, 1998



Director
Air Division

PERMIT CONDITIONS

I. Permit Expiration

This approval to Construct/Modify shall become invalid (1) if construction is not commenced (as defined in 40 CFR 52.21(b)(8)) within 18 months after the approval takes effect, (2) if construction is discontinued for a period of 18 months or more, or (3) if construction is not completed within a reasonable time.

II. Notification of Commencement of Construction and Startup

The Regional Administrator shall be notified in writing of the anticipated date of initial startup (as defined in 40 CFR 60.2(o)) of each facility of the source not more than sixty (60) days nor less than thirty (30) days prior to such date and shall be notified in writing of the actual data of commencement of construction and startup within fifteen (15) days after such date.

III. Facilities Operation

All equipment, facilities, and systems installed or used to achieve compliance with the terms and conditions of this Approval to Construct/Modify shall at all times be maintained in good working order and be operated as efficiently as possible so as to minimize air pollutant emissions.

IV. Malfunction

The Regional Administrator shall be notified by telephone within 48 hours following any failure of air pollution control equipment, process equipment, or of a process to operate in a normal manner which results in an increase in emissions above any allowable emissions limit stated in Section X of these conditions. In addition, the Regional Administrator shall be notified in writing within fifteen (15) days of any such failure. This notification shall include a description of the malfunctioning equipment or abnormal operation, the date of the initial failure, the period of time over which emissions were increased due to the failure, the cause of the failure, the estimated resultant emissions in excess of those allowed under Section X of these conditions, and the methods utilized to restore normal operations. Compliance with this malfunction notification provisions shall not excuse or otherwise constitute a defense to any violations of this permit or of any law or regulations which such malfunction may cause.

V. Right to Entry

The Regional Administrator, the head of the State Air Pollution Control Agency, the head of the responsible local Air Pollution Control Agency, and/or their authorized representative, upon the presentation of credentials, shall be permitted:

- A. to enter upon the premises where the source is located or in which any records are required to be kept under the terms and conditions of this Approval to Construct/Modify; and
- B. at reasonable times to have access to and copy any records required to be kept under the terms and conditions of the Approval to Construct/Modify: and

- C. to inspect any equipment, operation, or method required in this Approval to Construct/Modify; and
- D. to sample emissions from the source.

VI. Transfer of Ownership

In the event of any changes in control or ownership of facilities to be constructed or modified, this Approval to Construct/Modify shall be binding on all subsequent owners and operators. The applicant shall notify the succeeding owner and operator of the existence of this Approval to Construct/Modify and its conditions by letter, a copy of which shall be forwarded to the Regional Administrator and the State and local Air Pollution Control Agency.

VII. Severability

The provisions of this Approval to Construct/Modify are severable, and, if any provision of this Approval to Construct/Modify is held invalid, the remainder of this Approval to Construct/Modify shall not be affected thereby.

VIII. Other Applicable Regulations

The owner and operator of the proposed project shall construct and operate the proposed stationary source in compliance with all other applicable provisions of 40 CFR Parts 52, 60 and 61 and all other applicable federal, state and local air quality regulations.

IX. Paperwork Reduction Act

Any requirements established by this permit for the gathering and reporting of information are not subject to review by the Office of Management and Budget ("OMB") under the Paperwork Reduction Act because this permit is not an "information collection request" within the meaning of 44 U.S.C. §§ 3502(4) & (11), 3507, 3512, and 3518. Furthermore, this permit and any information gathering and reporting requirements established by this permit are exempt from OMB review under the Paperwork Reduction Act because it is directed to fewer than ten persons. 44 U.S.C. § 3502(4), (11); 5 C.F.R. § 1320.5(a).

X. Special Conditions

A. Certification

ENRON shall notify the EPA in writing of compliance with Special Conditions X.B and X.J and shall make such notification within (15) days of such compliance. This letter must be signed by a responsible representative of ENRON.

B. Air Pollution Control Equipment

ENRON shall install, continuously operate and maintain a water/fuel emulsification system to minimize emissions. Controls listed shall be fully operational upon startup of the proposed equipment and, prior to optimization testing, shall be operated at an injection rate of not less than 25% water to total water/fuel mixture by volume.

Upon completion of the optimization testing, EPA may set a new water/fuel injection ratio.

C. Performance Tests

1. Within 60 days of achieving the maximum production rate of the proposed equipment but not later than 180 days after initial startup of the equipment as defined in 40 CFR 60.2(o), and at such other times as specified by the EPA, ENRON shall conduct performance tests for NO_x, SO₂, CO, VOC, PM and opacity and furnish the EPA (Attn: AIR-5) a written report of the results of such test. The tests for NO_x, SO₂, CO, VOC, PM and opacity shall be conducted on an annual basis and at the maximum operating capacity of the facilities being tested. Upon written request (Attn: AIR-5) from ENRON, EPA may approve the conducting of performance test as a lower specified production rate. After initial performance tests and upon written request and adequate justification from ENRON, EPA may waive a specified annual test for the facility.
2. Performance tests for the emissions of SO₂, NO_x, CO, VOC, PM and opacity shall be conducted and the results reported in accordance with the test methods set forth in 40 CFR 60, Part 60.8 and Appendix A. The following test methods shall be used:
 - a. Performance tests for the emissions of SO₂ shall be conducted using EPA Methods 1-4 and 6C.
 - b. Performance tests for the emissions of PM shall be conducted using EPA Methods 1-4 and 5B.
 - c. Performance tests for the emissions of NO_x shall be conducted using EPA Methods 1-4 and 7E.
 - d. Performance tests for the emissions of CO shall be conducted using EPA Methods 1-4 and 10.
 - e. Performance tests for the emissions of VOC shall be conducted using EPA Methods 1-4 and 25A.
 - f. Performance tests for opacity shall be conducted using EPA Method 9.

The EPA (Attn: AIR-5) shall be notified in writing at least 30 days prior to such test to allow time for the development of an approvable performance test plan and to arrange for an observer to be present at the test.

Such prior approval shall minimize the possibility of EPA rejection of test results for procedural deficiencies. In lieu of the above-mentioned test methods, equivalent methods may be used with prior written approval from the EPA.

3. For performance test purposes, sampling ports, platforms and access shall be provided by GPA on the diesel engine exhaust systems in accordance with 40 CFR 60.8(e).

D. Operating Limitations

1. The sulfur content in the fuel oil used to fire the diesel engine shall not exceed 2.0 percent by weight during periods when the wind is blowing off-shore and 1.19 percent when the wind is blowing on-shore. Off-shore and on-shore wind directions are defined in the protocol for fuel switching titled *Cabras-Piti Area Intermittent Control Strategy* and referenced in 40 CFR 69.11(a)(3)(i).
2. In order to ensure compliance with the 3-hour SO₂ NAAQS during on-shore wind conditions, ENRON must comply with one of the following conditions:
 - a. ENRON shall burn No.6 fuel oil in Piti Units 8 and 9 with a maximum sulfur content not to exceed 0.5 percent by weight if all other Cabras-Piti units are operating and burning 1.19 percent fuel; or
 - b. ENRON may operate and burn No. 6 fuel oil, with a maximum sulfur content of 1.19 percent, in both Piti Units 8 and 9 when 1) both Piti Units 4 and 5 are not operating, or 2) either Cabras Units 1 or 2 are not operating. Should only one of the two Piti 4 and 5 units be operating then one of the two Cabras steam units (1 or 2) must also be shutdown in order for Piti 8 and 9 units to operate; or
 - c. ENRON complies with an alternative fuel switching protocol approved by the Administrator of GEPA and by the USEPA.
3. ENRON shall install water meters and non-resetting fuel meters to monitor and record the fuel consumption and the percent of water-to-fuel mix being fired in the diesel engines. All information, including fuel sulfur content, fuel use, percent water in the fuel mix and hours of operation, shall be recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, calculation and record.
4. ENRON shall not operate any of the diesel engines below 50 percent of rated load except during periods of startup, shutdown, testing or maintenance.

E. Emissions Limits for SO₂

On and after the date of startup, ENRON shall not discharge or cause the discharge into the atmosphere from each diesel engine SO₂ in excess of 780 lbs/hr averaged over a three hour period.

F. Emission Limits for PM

On and after the date of startup, ENRON shall not discharge or cause the discharge into the atmosphere from each diesel engine PM₁₀ in excess of 168 lbs/hr averaged over a three hour period.

On or after the date of startup, ENRON shall not discharge or cause the discharge into the atmosphere from the engine exhaust stack gases which exhibit an opacity of 20% or greater for any period of periods aggregating more than six minutes in any one hour except during periods of startup or shutdown.

EPA may set a new lower allowable emission rate for the above emission limits after reviewing the performance test results required under Special Conditions C.

If the PM emission limit is revised, the difference between the PM emission limit set forth above and a revised lower PM emission limit shall not be allowed as an emission offset for future construction or modification.

G. Emission Limits for NO_x

On and after the date of startup, ENRON shall not discharge or cause the discharge into the atmosphere from each diesel engine NO_x in excess of the more stringent of 1,366 lbs/hr or 950 ppm at 15% O₂ averaged over a three hour period.

Subsequent to full scale operation of Units 8 & 9, ENRON shall conduct an optimization study of the water emulsification system. The study shall consist of varying the percentage of water-to-fuel mix to determine the optimal NO_x removal efficiency, taking into account impacts on fuel efficiency and on SO₂ and CO emission rates. Upon completion of the study and after reviewing the performance test results EPA may set a new lower allowable emission rate and/or a new rate of water/fuel emulsification.

If the NO_x emission limit is revised, the difference between the NO_x emission limit set forth above and a revised lower NO_x emission limit shall not be allowed as an emission offset for future construction or modification.

H. Emission Limits for CO

On and after the date of startup, ENRON shall not discharge or cause the discharge into the atmosphere from each diesel engine CO in excess of 125 lbs/hr averaged over a three hour period.

EPA may set a new lower allowable emission rate for the above emission limits after reviewing the performance test results required under Special Conditions C. If the CO emission limit is revised, the difference between the CO emission limit set forth above and a revised lower CO emission limit shall not be allowed as an emission offset for future construction or modification.

I. Emission Limits for VOC

On and after the date of startup, ENRON shall not discharge or cause the discharge into the atmosphere from each diesel engine VOC in excess of 154 lbs/hr averaged over a three hour period.

EPA may set a new lower allowable emission rate for the above emission limits after reviewing the performance test results required under Special Conditions C.

If the VOC emission limit is revised, the difference between the VOC emission limit set forth above and a revised lower VOC emission limit shall not be allowed as an emission offset for future construction or modification.

J. Continuous Emission Monitoring

1. Within 180 days of the date of startup and thereafter, ENRON shall install, maintain and operate the following continuous monitoring systems (CEM) in the main stack:
 - a. A continuous monitoring system to measure stack gas NO_x concentrations. The system shall meet EPA monitoring performance specification (40 CFR 60.13 and 40 CFR 60, Appendix B, Performance Specifications 2 and 3).
 - b. A continuous monitoring system to measure stack gas volumetric flow rates. The system shall meet EPA performance specifications (40 CFR Part 52, Appendix E).
2. ENRON shall conduct weekly visible emission observations for each engine in accordance with 40 CFR Part 60, Appendix A, Method 9 or by use of a Ringlemann chart. For each period, two (2) observations shall be taken at fifteen (15) second intervals for six (6) consecutive minutes for each engine.
3. ENRON shall maintain a file of all measurements, including continuous monitoring systems evaluations, all continuous monitoring systems or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; performance and all other information required by 40 CFR 60 recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, maintenance, reports and records.

4. ENRON shall notify EPA (Attn: AIR-5) of the date which demonstration for the continuous monitoring system performance commences (40 CFR 60.13). This date shall be no later than 60 days after full load operation but not later than 180 days after startup.
5. ENRON shall submit a written report of all excess emissions to EPA (Attn: AIR-5) for every calendar quarter. The report shall include the following:
 - a. The magnitude of the excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factors used, and the date and time of commencement and compilation of each time period of excess emissions.
 - b. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the engine exhaust systems. The nature and cause of any malfunction (if known) and the corrective action taken or preventative measures adopted shall also be reported.
 - c. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks, and the nature of the system repairs or adjustments.
 - d. When no excess emissions have occurred or the continuous monitoring system has not been inoperative, repaired, or adjusted, such information shall be stated in the report.
 - e. Excess emissions shall be defined as any 3-hour period during which the average emissions of NO_x, as measured by the CEM exceeds the maximum emission limits set forth in Condition X.G.
6. Excess emission indicted by the CEM system shall be considered violations of the applicable emission limit for the purpose of this permit.
7. The quality assurance project plan used by ENRON for the certification and operation of the continuous emissions monitors, which meets the requirements of 40 CFR Part 60, Appendix F, shall be available upon request to EPA.

XI. Agency Notifications

All correspondence as required by this Approval to Construct/Modify shall be forwarded to:

- A. Director, Air Division (Attn: AIR-5)
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105
- B. Administrator
Guam Environmental Protection Agency
P.O. Box 22439 GMF
Barrigada, Guam 96921



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, CA 94105-3901

November 24, 1998

IN REPLY AIR-3
REFER TO: NSR 4-11
 GU 97-01

Mr. David Howe
Vice President
ENRON Development Piti LLC
545 West Marine Drive, Second Floor
Agana, Guam 96910

Dear Mr. Howe:

In accordance with provisions of the Clean Air Act, as amended (42 U.S.C. 7401 et seq.), the Environmental Protection Agency has reviewed the application for an Approval to Construct submitted by ENRON Development for the construction and operation of two 45 megawatt diesel engine electric generators, waste heat recovery boilers, and a steam turbine generator to be located at the existing Piti Power Plant on the island of Guam.

A request for public comment regarding EPA's proposed action on the above application has been published. After consideration of the expressed views of all interested persons (including State and local agencies), and pertinent Federal statutes and regulations, the EPA hereby issues the enclosed Approval to Construct/Modify a Stationary Source for the facilities described above. This action does not constitute a significant change from the proposed action set forth and offered for public comment.

This Approval to Construct/Modify shall take effect immediately.

Should you have any questions regarding this matter, please contact Bob Baker of our Permits Office at (415) 744-1258.

Sincerely,

David P. Howekamp
Director
Air Division

Enclosures

cc: Guam EPA
 John M. McNurney, R.W. Beck



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

**75 Hawthorne Street
San Francisco, CA 94105-3901
April 14, 1998**

**IN REPLY AIR-3
REFER TO: NSR 4-11
 GU 97-01**

**Mr. David Howe
Vice President
ENRON Development Piti LLC
545 West Marine Drive, Second Floor
Agana, Guam 96910**

Dear Mr. Howe:

This letter is in response to your application, dated November 21, 1997 and received by this office on November 24, 1997, with additional information received on March 10, 1998, submitted by R.W. Beck on behalf of ENRON Development, for an Environmental Protection Agency Prevention of Significant Deterioration (PSD) Approval to Construct. The application is for the construction and operation of two 45 megawatt diesel engine electric generators, waste heat recovery boilers, and a steam turbine generator at the existing Piti Power Plant on the island of Guam.

After our review of the above application and additional supporting information, we have determined that it is administratively complete. A preliminary determination, which will include an Ambient Air Quality Impact Report (AAQIR) and draft permit, is being developed. However, it is possible that clarifying information on one or more parts of the application may be required before we can issue a draft permit.

This notification of completeness does not imply that the EPA agrees with any analyses, conclusions or positions contained in the application. Also, if you should request a suspension in the processing of the application, or submit new information indicating a significant change in the project design, ambient impact or emissions, this determination of completeness may be revised.

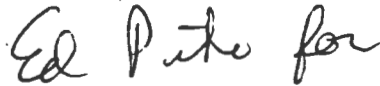
Upon issuance of the preliminary determination, we will publish a public notice of our intent to issue the permit. The comment period specified in the notice shall be at least 30 days. Please be advised that at anytime anyone may have full access to the application materials and other information you provide to us in connection with this permit action.

This letter is also to inform you of your rights to claim business confidentiality under 40 CFR 2, Subpart B for any part of or all of the information you provide us, and to document for our files that we have done so. If you do not make a claim of confidentiality for any of this material within 15 days of the date you receive this letter you will have waived your right to do so. The facility name and address may not be claimed as confidential.

If you wish to claim confidentiality, you must substantiate your claim. Your substantiation must address the points enumerated in the attachment to this letter, in accordance with 40 CFR 2.204(e).

If you should have any questions concerning a claim of confidentiality or if you should have any questions concerning the review of your application, please contact Bob Baker of my staff at (415) 744-1258.

Sincerely,



Matt Haber
Chief, Permits Office
Air Division

Attachment

cc: Guam EPA
Peg Young, R.W. Beck

ATTACHMENT

INSTRUCTIONS FOR CLAIMING CONFIDENTIALITY

A. Pursuant to 40 CFR 2.204(e), your claim must address these points:

- i. The portions of the information alleged to be entitled to confidential treatment;
- ii. The period of time for which confidential treatment is desired by the business (e.g., until the occurrence of a specific event, or permanently);
- iii. The purpose for which the information was furnished to EPA and the appropriate date of submission, if known;
- iv. Whether a business confidentiality claim accompanied the information when it was received by EPA;
- v. Measures taken by you to guard against the undesired disclosure of the information to others;
- vi. The extent to which the information has been disclosed to others and the precautions taken in connection therewith;
- vii. Pertinent confidentiality determinations, if any, by EPA or other Federal agencies, and a copy of any such determination or reference to it, if available;
- viii. Whether you assert that disclosure of this information would be likely to result in substantial harmful effects on your business's competitive position, and if so, what those harmful effects would be, why they should be viewed as substantial; and an explanation of the casual relationship between disclosure and such harmful effect, and
- ix. Whether you assert that the information is voluntarily submitted information and if so, whether any disclosure of the information would tend to lessen the availability to EPA of similar information in the future. "Voluntarily submitted information" is defined in 40 CFR Section 2.201(i) as business information in EPA's possession - -
 - a). The submission of which EPA has no statutory or contractual authority to require; and
 - b). The submission of which was not prescribed by statute or regulation as a condition of obtaining some benefit (or avoiding some disadvantage) under a regulatory program of general applicability, including such

regulatory programs as permit, licensing, registration, or certification programs, but excluding programs concerned solely or primarily with the award or administration by EPA of contracts or grants.

- B. We will disclose information covered by your claim only to the extent provided for in 40 CFR Part 2, Subpart B Confidentiality of Business Information. Please address your claim and substantiation of confidentiality to the staff person mentioned in the letter at EPA Region 9 (AIR-3), 75 Hawthorne Street, San Francisco, CA 94105.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, CA 94105-3901

December 22, 1997

IN REPLY AIR-3
REFER TO: NSR 4-11
 GU 97-01

Mr. David Howe
Vice President
ENRON Development Piti LLC
545 West Marine Drive, Second Floor
Agana, Guam 96910

Dear Mr. Howe:

This letter is in response to your application, dated November 21, 1997 and received by this office on November 24, 1997, Submitted by R.W. Beck on behalf of ENRON Development, for an Environmental Protection Agency Prevention of Significant Deterioration (PSD) Approval to Construct. The application is for the construction and operation of two 45 megawatt diesel engine electric generators, waste heat recovery boilers, and a steam turbine generator at the existing Piti Power Plant on the island of Guam.

After our initial review of the above application and all supporting information, the EPA has found it to be incomplete. The PSD regulations (40 CFR 52.21(m)(1)) require the permit application to contain continuous air quality monitoring data sufficient to determine whether emissions of that pollutant would cause or contribute to exceedances of any standard. In general, the required monitoring data should have been gathered for a period of at least one year and should represent at least the year preceding receipt of the application. Our review of the application indicated that there is insufficient SO₂ monitoring data for the application to be deemed complete.

If you have any questions concerning the review of your application, please contact Bob Baker of my staff at (415) 744-1258 or Carol Bohnenkamp at (415) 744-1298.

Sincerely,

A handwritten signature in dark ink, appearing to read "Matt Haber", with a long horizontal flourish extending to the right.

Matt Haber
Chief, Permits Office
Air Division

cc: Guam EPA
 Peg Young, R.W. Beck



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street

San Francisco, CA 94105-3901

October 7, 1998

IN REPLY AIR-3
REFER TO: NSR 4-11
 GU 97-01

Mr. David Howe
Vice President
ENRON Development Piti LLC
545 West Marine Drive, Second Floor
Agana, Guam 96910

Dear Mr. Howe:

This is in response to your November 21, 1997 application for an Environmental Protection Agency Approval to Construct pursuant to the Prevention of Significant Air Quality Deterioration regulations (40 CFR 52.21). The proposed project is the construction and operation of two 45 megawatt diesel engine electric generators, waste heat recovery boilers, and a steam turbine generator to be located at the existing Piti Power Plant on the island of Guam.

Our review of the information submitted indicates that pollutants would be emitted in the amounts as listed below:

<u>Pollutants</u>	<u>Allowable Emission Rate tons/year</u>
Sulfur Dioxide	6.833
Nitrogen Oxides	11.957
Particulate <PM10>	1.471
Volatile Organic Compounds (VOC)	1,349
Carbon Monoxide	1,095

On the basis of the information submitted by the ENRON Development, and the review criteria established by the above mentioned regulations, EPA has concluded that the project will not cause, or contribute to, a violation of any National Ambient Air Quality Standard. It is the intent of EPA to approve the project subject to the enclosed conditions.

A public notice in the local newspaper will announce the proposed project. EPA's proposed action, and the locations where EPA's technical analysis will be available. Comments on this proposed action may be submitted to the EPA San Francisco Regional Office, Attn: Bob Baker (AIR-3), for a period of thirty (30) days from the start of the public

comment period. Unless substantive new information is forthcoming, a final decision on the proposed action granting an Approval to Construct will be taken within thirty (30) days from the close of the public comment period. Should there be a significant degree of public comment with respect to the proposed action, EPA may hold a public hearing. The final permit action will be effective 30 days after its receipt by ENRON Development, unless:

1. Review is requested under 40 CFR 124.19.
2. No comments requested a change in the draft permit, in which case the permit shall become effective immediately upon issuance.

Enclosed is a copy of the EPA's Ambient Air Quality Impact Report for the project. A copy of this report is available for public inspection at the Guam Environmental Protection Agency.

For questions concerning the technical review of your application please call Bob Baker of our Permits Office at (415) 744-1258.

Sincerely,



Matt Haber
Chief, Permits Office
Air Division

Enclosure

cc: Guam EPA
John M. McNurney, R.W. Beck

**AMBIENT AIR QUALITY IMPACT REPORT
PITI UNITS 8 AND 9
(GU 97-01)**

I. APPLICANT

ENRON Development Piti LLC
545 West Marine Drive, Second Floor
Agana, Guam 96910

II. PROJECT LOCATION

The proposed project (Units #8 and #9) will be constructed at the existing Piti Power Plant. The Piti Power Plant is located on the northwest shore of Guam, situated just to the southeast and across the Piti Channel from the Cabras Power Plant on Cabras Island. The project site is on approximately 3.14 acres situated between the existing Piti Power Plant and the existing Piti Substation. The site is bounded by Route 11 to the north, the Naval Public Works Center property to the south, the existing Piti Power Plant to the west, and the existing Piti Substation to the east. The western edge of the village of Piti is approximately 500 feet to the east of the overall Piti Power Plant property boundary. Both existing and proposed facilities are located in an area designated as unclassified or attainment for all criteria pollutants.

III. PROJECT DESCRIPTION

Piti Power Plant currently consists of two oil-fired boilers (Piti Units 4 and 5) firing No. 6 residual fuel oil, each rated at approximately 258 MMBtu/hr with a steam turbine/generator and a small boiler (Piti Unit 6) also fired on #6 oil. A simple cycle combustion turbine (Piti Unit 7) is also proposed for construction at the site.

The proposed project will consist of two low-speed No. 6 fuel oil-fired diesel engine generating (DEG) units with a nominal rating of approximately 45,200 kW each. The engines will be named Piti Units 8 and 9. Two waste heat recovery boilers and a steam turbine generator will be included for additional power generation of approximately 2 MW. The steam will also be used for soot blowing and to heat the No. 6 fuel oil. The power house building for the project consists of a generating hall adjoined by a two-story mechanical annex, a one-story electrical annex, and a two-story service annex.

The diesel engines will be cooled with jacket water cooling using radiators. The engines must be cooled to avoid overheating which could damage the cylinders, pistons, and valves. Radiators will be built to the north of the power house and make-up water will be provided by the pre-treated service water. New aboveground piping will be installed to convey cooling water from the engines to the radiators.

Two new 370,000 gallon residual fuel oil storage tanks will be installed for the diesel engines, one for low sulfur No. 6 fuel and the other for high sulfur No. 6 fuel. Fuel oil stored in these tanks will be processed through a heater and purifier set. In addition, two new 40,000 gallon service fuel oil day tanks will also be installed.

IV. EMISSIONS FROM THE PROPOSED PROJECT

Table 1 presents estimated annual controlled and uncontrolled emissions for the proposed facility. The proposed controlled emissions were used in the air quality dispersion modeling. The emissions were computed by the applicant using vendor-supplied emissions estimates. SO₂ emissions were calculated using a maximum sulfur in fuel content of 2.00% by weight for both the existing plant and the proposed diesel engines.

TABLE 1 - ESTIMATED EMISSIONS FROM TWO DIESEL GENERATORS

Pollutant	Emission Rates ⁽¹⁾			
	Uncontrolled Emissions		Controlled Emissions ²	
	lbs/hr	tons/yr ⁽³⁾	lbs/hr	tons/yr
NO _x	4,140	18,133	2,730	11,957
SO ₂ ⁽⁴⁾	1,480	6,482	1,560	6,833
CO	156	683	250	1,095
PM-10	292	1,279	336	1,471
VOC	204	894	308	1,349

⁽¹⁾ All emissions based on 100% load and 8,760 hours per year.

⁽²⁾ The primary NO_x control method is water/fuel emulsification.

Annual emission rates are for both engines (Units 8 and 9) operating at 100% base load.

⁽⁴⁾ Hourly rate is for 2.00% sulfur fuel. Annual rate assumes 2.00% sulfur fuel 90% of the time and 1.19% sulfur fuel 10% of the time.

V. APPLICABILITY OF THE PREVENTION OF SIGNIFICANT DETERIORATION (PSD) REGULATIONS

The PSD regulations (40 CFR 52.21) define a "major source" as any source type belonging to a list of 28 source categories which emits or has the "potential to emit" 100 tons per year (tpy) or more of any pollutant regulated under the Clean Air Act, or any other source type which emits or has the potential to emit such pollutants in amounts equal to or greater than 250 tpy. The proposed project is a major source because it has the potential to emit regulated pollutants in amounts greater than 250 tpy (see Table 1).

Under the PSD regulations, "significant net emissions increase", is defined as a net increase in emissions which would equal or exceed the significance levels [40 CFR 52.21(b)(23)(i)] for each pollutant subject to regulation. The significance levels prescribed by the PSD regulations for the subject pollutants are:

Pollutant	Significant Emission Rate (tons/year)
Carbon Monoxide	100
Nitrogen Oxides	40
Sulfur Dioxide	40
PM-10	15
Ozone	40 of VOC

A PSD review is required for all pollutants from a major source showing significant net increases in emissions in an area for which the applicable National Ambient Air Quality Standard (NAAQS) for those pollutants have not been exceeded (attainment area), or if the status of the area is unclassified. Guam Island has been designated as either attainment or unclassified for all criteria pollutants, with the exception of SO₂. The area surrounding the Piti Power Plant facility is currently designated non-attainment for SO₂. By request of the Governor of Guam, in 1993 the EPA issued an exemption under Section 325 of the CAA for the island allowing the addition of electric generating sources provided that NAAQS are maintained. With regard to SO₂, the exemption states that "Electric generating units to be constructed in the Cabras-Piti area must submit applications for PSD permits as though the area had been redesignated to attainment for the sulfur dioxide NAAQS". Therefore, a PSD review is required for all criteria pollutants (including SO₂) if the project would result in significant increases of the respective pollutants.

Table 1 shows that the net emission increases of NO_x, SO₂, CO, PM₁₀, and VOC are greater than the significance levels as defined in the PSD regulations. Therefore, the source is subject to PSD review for NO_x, SO₂, CO, PM₁₀, and VOC as follows:

1. Application of Best Available Control Technology (BACT);
2. Analysis of ambient air quality impacts from the project;
3. Analysis of air quality and/or visibility impacts on Class I areas; and
4. Analysis of impacts on soil and vegetation.

VI. BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

The PSD regulations require that a determination of BACT be made for each pollutant subject to review. BACT is defined as "...an emission limitation (including a visible emission standard) based on the maximum degree of reduction of each pollutant subject to regulation under the Act...which the Administrator, on a case-by-case basis, taking into account energy, environmental and economic impacts, and other costs, determines is achievable for such source..."

For Piti Units 8 and 9, a BACT determination is required for NO_x , SO_2 , CO, PM_{10} and VOC since they are all attainment pollutants which have a major or significant increase in emissions. Alternative BACT technologies for NO_x , SO_2 , CO, PM_{10} and VOC are discussed below.

A. BACT for NO_x

The EPA RACT/BACT/LAER Clearinghouse (RBLC) was reviewed to identify appropriate NO_x control technologies to be considered for the BACT determination. Over 50 diesel engines fired on liquid fuel for which BACT determinations had been made and PSD applications approved were reviewed. Alternative technologies examined for NO_x control included: Fuel Injection Timing Retard (FITR), lean combustion, clean burn combustion technologies, turbo charging and intercooling, Selective Catalytic Reduction (SCR), inlet air humidification, and inlet air cooling. Of the numerous BACT determinations for stationary diesel engines identified in the RBLC, none of the units were of comparable size or fired on residual fuel oil. In addition to the entries in the RBLC, three other facilities and ship propulsion applications were identified and reviewed. Of particular interest was the recent modification of the Cabras Power Plant located on Cabras Island, Guam, to include two new large diesel engines fired on No. 6 residual fuel oil. The NO_x control system identified as BACT for the two engines is water/fuel emulsification in combination with ignition timing retardation. However, a NO_x optimization study conducted after startup of the Cabras engines indicated that water/fuel emulsification provided the greatest benefit for reducing NO_x while ignition timing retardation generally caused increases in the other pollutants with little or no effect on NO_x emissions.

For NO_x , the applicant determined that the most stringent control technology option, SCR, was technically infeasible for a diesel engine firing No. 6 fuel oil. SCR was also found to have significant environmental, economic and energy impacts. The next most stringent control technology after SCR was water/fuel emulsification which was found to be the most technically and economically feasible option which provided the highest level of NO_x emissions control without significant adverse environmental impacts.

After reviewing the available data, EPA has concluded that the use of water/fuel emulsification represents BACT for the control of NO_x emissions from the proposed diesel engines.

B. BACT for Carbon Monoxide and Hydrocarbons

The most stringent control technology for CO or VOC associated with diesel engine operation is an oxidation catalyst. The only other control option identified was combustion control. The oxidation catalyst was judged as not representing BACT because it is technically infeasible, and has significant environment and economic impacts. BACT was determined to be the minimum emission rates achievable through proper engine design, operation and maintenance.

After reviewing the available data, EPA has concluded that the use of combustion controls represents BACT for the control of CO and VOC emissions from the proposed diesel engines.

C. BACT for Sulfur Dioxide

In 1993 GPA requested, and was granted, exemption from the intermittent control systems prohibition of the CAA. As an alternative control strategy, the EPA is allowing the GPA to utilize the fuel switching protocol outlined in the Cabras-Piti Area Intermittent Control Strategy (CPAICS) document. This protocol allows the use of a maximum 2.00% sulfur by weight No. 6 fuel oil during periods when the wind is blowing offshore (approximately 90% of the time). Low sulfur content fuel oil (1.19% by weight) must be used during periods when the wind is blowing onshore or when the wind is blowing less than 1.0 meters per second. These conditions occur approximately 10% of the time. Therefore, pursuant to Section 325 of the CAA, EPA is allowing as BACT for SO₂, the use of intermittent fuel switching based on using 2.00% by weight sulfur fuel oil during offshore winds and 1.19% sulfur fuel oil during onshore winds, as determined in accordance with the provisions of the CPAICS Fuel Switching Protocol.

D. BACT for Particulates

The applicant reviewed the RBLC and other projects and concluded that no post-combustion particulate control such as electrostatic precipitators or baghouses have been employed on diesel engines. The high gas velocities and volumetric flow rates associated with diesel engines along with the high combustion efficiency of diesel engines make the application of post-combustion particulate control devices not cost effective. Instead, the applicant proposes to control particulate emissions through combustion controls via proper engine design, operation and maintenance.

After reviewing the available data, EPA has concluded that the use of combustion controls represents BACT for the control of particulate emissions from the proposed diesel engines.

VII. AIR QUALITY IMPACTS

The PSD regulation require an air quality analysis to determine the impacts of the proposed project on ambient air quality. For all regulated pollutants emitted in significant quantities, the analysis must consider whether the proposed project will cause a violation of (1) the applicable PSD increments, and (2) the National Ambient Air Quality Standards (NAAQS). A discussion on the general approach, air quality model selection, significant impact levels, PSD increment consumption, and compliance with ambient air quality standards, is presented below.

A. General Approach

Air quality modeling was used to determine the ambient impacts of the proposed two new engines as well as impacts of all other facilities in the area. Both screening and refined levels of modeling were performed for simple and complex terrain in accordance to the Guidance on Air Quality Models (Revised, EPA, 1986) and the dispersion modeling protocol dated 23 September 1997 developed for the addition of two new diesel generators at the nearby Tenjo Vista Power Plant and approved by USEPA.

The receptor network for the screening analysis consisted of receptors spaced 100 m apart from 100 to 2,000 m, 200 m apart from 2,000 m to 4,000 m, and 500 m apart from 4,000 m to 5,000 m. Each receptor was assigned an elevation which corresponded to the highest terrain point surrounding the site at or near the given receptor distance from the site.

Three categories of receptor grids were used for the refined air quality analysis: (1) a coarse receptor grid describing the study area, (2) a fine receptor grid in the on-shore direction centered approximately 3 km southeast of the Piti Power Plant, and (3) a fine receptor grid on Orote Peninsula. The fine grid receptors were determined from the coarse grid analysis based on those areas where ambient ground-level concentrations were expected to be maximum. The resolution of the fine grid was 100 meters extending in a rectangular coordinate system around the critical receptor.

Because of the fuel-switching that occurs at the Cabras and Piti power plants, the assessment of SO₂ impacts in the study area required two separate grids. The first grid described that part of the study area which is referred to as "on-shore" based on GPA's fuel-switching procedures. The "on-shore" grid is covered by the coarse grid and the fine grid southeast of Piti Power Plant. The second grid described the remaining area referred to as "off-shore", or Orote Peninsula.

B. Air Quality Model Selection

Both screening and refined modeling methods were used in the analysis. As presented in the modeling protocol, the USEPA approved dispersion models selected for the air quality analyses were SCREEN3 (dated 96043) for the screening level analysis, and the Industrial Source Complex-Short Term (ISCST3, dated 96113) model. SCREEN3 is used to assess the impacts of a point source in simple or complex terrain. The model estimates maximum concentrations using an algorithm similar to PTPLU-2 for simple terrain and an algorithm similar to VALLEY for complex terrain. ISCST3 uses a steady-state, bivariate Gaussian distribution algorithm to estimate ground-level concentrations; is appropriate in areas classified as rural according to Auer's land use classifications; can accept either assumed default meteorology or sequential, hourly meteorological data; and can analyze the effects of multiple point source interaction.

The air quality model used for the screening analysis of the proposed project at various operating loads was the SCREEN3 model. The model was run with all regulatory default options. The VALLEY mode in SCREEN3 was used to determine 24-hour criteria pollutant concentration averages and is a screening technique using default "worst-case" assumptions with respect to meteorology. The refined analysis used on-site meteorological data. In the current ambient air quality impact analysis, the Cabras Power Plant on-site meteorology data is used. One complete year (March 1st, 1993 to February 28, 1994) of actual surface observations recorded at 60 meters msl at the Cabras meteorological station was utilized as the surface meteorology data input for the air quality analyses.

C. Air Quality Analysis

Preliminary Analysis

The screening analysis identified those criteria pollutants which may be anticipated to have air quality impacts above the regulatory significance levels. All of the maximum predicted concentrations were above the significant impact levels except for CO. Therefore, full impact analyses are required for all of the pollutants except for CO. Since no significant preliminary modeling impacts exist within the impact area for carbon monoxide, no additional modeling is required.

Analysis of PSD Increment Consumption

The increment analysis for the diesel units and other PSD sources consisted of modeling to identify the highest second-highest (HSH) impact for each pollutant and each averaging interval. Since short-term standards and increments may be exceeded once per year, the maximum second-highest concentration for the short-term averaging times was selected as the predicted air quality impact of the interactive source analyses and compared to the short-term standards and increments in accordance with EPA-approved practices and consistent with the modeling protocol. The annual average is the highest predicted concentration averaged over the year for a given receptor. These impacts were compared directly to the allowable PSD Class II increments in Table 2. There are no PSD Class I or Class III areas on Guam.

SO₂ impacts in the off-shore direction are low relative to the PSD increment due to the offset provided by the retirement of Piti Units 2 and 3. This is not the case relative to the on-shore direction, where impacts from sources other than Cabras-Piti are important. The 3-hour and 24-hour HSH SO₂ impacts were predicted to be 466 and 85 ug/m³, respectively. These impacts are approximately 91 and 93 percent, respectively, of the allowable increment. The 3-hour impact occurs approximately 1 km northeast of Tenjo, in high terrain and is due to operation of the Tenjo Power Plant. The 24-hour impact occurs approximately 0.5 km west of Manenggon and is due to operation of the Manenggon Power Plant. The annual average concentration is 11 ug/m³ which is 55 percent of allowable increment. The annual impact occurs approximately 1.5 km west of Manenggon and is due to operation of the Manenggon Power Plant.

The raw annual average NOx concentration is 30 ug/m3. This impact is greater than the allowable NOx increment. However, use of the ozone limiting method reduces the impact to 13 ug/m3, or approximately 50 percent of the increment. The impact occurs on Orote Peninsula due to Cabras Units 3 and 4 and Piti Units 8 and 9. Similar impacts occur approximately 1.5 km west of Tenjo, and are due primarily to operation of the Tenjo Power Plant.

Particulate emissions result in a 24-hour HSH impact of 26 ug/m3 and represent 87 percent of the applicable increment. The 24-hour impact occurs approximately 1 km northeast of Tenjo, in high terrain, and is due to operation of the Tenjo Power Plant.

Table 2
PSD Class II Increment Analysis Results
(All Increment Consuming Sources in Area)

Pollutant	Averaging Period	Predicted Concentration ($\mu\text{g}/\text{m}^3$)	Class II Increment ($\mu\text{g}/\text{m}^3$)
SO ₂ On-Shore	3-hour	466	512
	24-hour	85.1	91
	Annual	10.8	20
SO ₂ Off-Shore	3-hour	72.1	512
	24-hour	23.4	91
	Annual	2.5	20
NO _x	Annual	13.0	25
PM-10	24-hour	26.1	30
	Annual	2.2	17

Analysis of Compliance with National Ambient Air Quality Standards

Results of the analysis for on-shore SO₂ HSH impacts are presented in Table 3. Based on the results, the HSH impact for the 3-hour averaging interval was initially estimated to be 1,479 ug/m3, approximately 114 percent of the NAAQS. The impact was located approximately 3 km southeast of Piti, in high terrain, and was due to all the Cabras-Piti sources. After consultation with GPA, ENRON, and EPA, it was decided that a reasonable approach to correcting the possible violation was to limit generation at the Cabras and Piti Power Plants. As indicated in Table 3, by excluding either Piti

Units 4 and 5 or Cabras Unit 1, impacts are reduced to 1,193 ug/m³, approximately 92 percent of the NAAQS. This generation limit of 344 MW gross (no operation at Piti Units 4 and 5) or 322 MW gross (Piti Units 4 and 5 operating) meets GPA's projected load requirements through the 2002.

The HSH impact for the 24-hour averaging interval is 240 ug/m³, approximately 66 percent of the NAAQS. The impact is located approximately 0.5 km southeast of Piti, and is due to all the Cabras-Piti sources. The highest annual impact is 30 ug/m³, which is well below the NAAQS.

The results of the fine grid analysis for the SO₂ HSH are presented in Table 3. The 3-hour HSH SO₂ impact is 1,099 ug/m³, approximately 85 percent of the NAAQS. The impact occurs approximately 7 km west of Piti, due to all the Cabras-Piti sources. The 24-hour HSH SO₂ impact is 340 ug/m³, approximately 93 percent of the NAAQS. The impact occurs 7 km west of Piti, due to all the Cabras-Piti sources.

Table 3
Predicted Air Quality Impacts from the Project (ISCST3)
(ug/m³)

Pollutant	Averaging Time	Maximum Predicted Impact	NAAQS
SO ₂ On-Shore	3-hour	1,193	1,300
	24-hour	240	365
	Annual	30	80
SO ₂ Off-Shore	3-hour	1,099	1,300
	24-hour	340	365
	Annual	77	80
NO _x	Annual	15	100
PM ₁₀	24-hour	35	150
	Annual	8	50
CO	1-hour	217	40,000
	8-hour	152	10,000

The highest annual impact is 84 ug/m³, 105 percent of the annual NAAQS. PSD regulations allow the use of capacity factors when examining annual impacts. The capacity factors for Cabras 1 and 2 and Piti 4 and 5 have been documented to be less than 90 percent. A further calculation was made with Cabras Unit Nos. 1 and 2, and Piti Unit Nos. 4 and 5 run with a 90

percent capacity factor which reduced the annual impact to 77 ug/m³, 96 percent of the NAAQS. The impact occurs approximately 7 km west of Pit, due to all the Cabras-Piti sources.

The NO_x highest annual impact is 46 ug/m³ corrected to 15 ug/m³ with the ozone limiting method. The HSH PM-10 24-hour impact is 35 ug/m³ while the annual average impact is 8 ug/m³. All of these concentrations are well below the NAAQS.

VIII. ADDITIONAL IMPACT ANALYSIS

In addition to assessing the ambient air quality impacts expected from a proposed new source or modification, the PSD regulations require that certain other impacts be considered. These additional impacts are those on visibility, soils and vegetation, and growth.

A. Visibility

The PSD regulations require that PSD permit applications address the potential impairment to visibility in Class I areas. Since there are no PSD Class I areas or identified scenic vistas on Guam, the visibility analysis is not necessary.

B. Soils and Vegetation

No listed endangered or sensitive species occur in the project area. Since all predicted concentrations are below NAAQS which were established to protect the environment, no significant, detrimental impacts are expected to occur to vegetation.

C. Growth Impacts

The proposed expansion is a response to increased electric demand caused by growth not related to GPA activities and there will not be any new employment or products, other than energy, resulting from the facility. Thus, no direct impact on local growth is expected.

IX. ENDANGERED SPECIES ACT

Pursuant to Section 7 of the Endangered Species Act, EPA is required to initiate consultation with the Fish and Wildlife Service (FWS) if any action, including permit issuance, might jeopardize the continued existence of endangered or threatened species or adversely modify their critical habitat.

No terrestrial bird, mammal, or reptile species that are federally or territorially listed are known to occur in the vicinity of the proposed facility. Since all predicted concentrations are below NAAQS which were established to protect the environment, no significant, detrimental impacts will occur to vegetation.

X. CONCLUSIONS AND PROPOSED ACTION

Based on the information supplied by the applicant, ENRON Development, and our review of analyses contained in the permit application, it is the preliminary determination of the EPA that the proposed project will employ Best Available Control Technology and will not cause or contribute to a violation of the NAAQS or an exceedance of any PSD increment. Therefore, EPA intends to issue to ENRON an Authority to Construct/Modify for Units 8 and 9 at the Piti Power Plant, subject to following permit conditions.

PERMIT CONDITIONS

I. Permit Expiration

This approval to Construct/Modify shall become invalid (1) if construction is not commenced (as defined in 40 CFR 52.21(b)(8)) within 18 months after the approval takes effect, (2) if construction is discontinued for a period of 18 months or more, or (3) if construction is not completed within a reasonable time.

II. Notification of Commencement of Construction and Startup

The Regional Administrator shall be notified in writing of the anticipated date of initial startup (as defined in 40 CFR 60.2(o)) of each facility of the source not more than sixty (60) days nor less than thirty (30) days prior to such date and shall be notified in writing of the actual date of commencement of construction and startup within fifteen (15) days after such date.

III. Facilities Operation

All equipment, facilities, and systems installed or used to achieve compliance with the terms and conditions of this Approval to Construct/Modify shall at all times be maintained in good working order and be operated as efficiently as possible so as to minimize air pollutant emissions.

IV. Malfunction

The Regional Administrator shall be notified by telephone within 48 hours following any failure of air pollution control equipment, process equipment, or of a process to operate in a normal manner which results in an increase in emissions above any allowable emissions limit stated in Section X of these conditions. In addition, the Regional Administrator shall be notified in writing within fifteen (15) days of any such failure. This notification shall include a description of the malfunctioning equipment or abnormal operation, the date of the initial failure, the period of time over which emissions were increased due to the failure, the cause of the failure, the estimated resultant emissions in excess of those allowed under Section X of these conditions, and the methods utilized to restore normal operations. Compliance with this malfunction notification provisions shall not excuse or otherwise constitute a defense to any violations of this permit or of any law or regulations which such malfunction may cause.

V. Right to Entry

The Regional Administrator, the head of the State Air Pollution Control Agency, the head of the responsible local Air Pollution Control Agency, and/or their authorized representative, upon the presentation of credentials, shall be permitted:

- A. to enter upon the premises where the source is located or in which any records are required to be kept under the terms and conditions of this Approval to Construct/Modify; and
- B. at reasonable times to have access to and copy any records required to be kept under the terms and conditions of the Approval to Construct/Modify; and

- C. to inspect any equipment, operation, or method required in this Approval to Construct/Modify; and
- D. to sample emissions from the source.

VI. Transfer of Ownership

In the event of any changes in control or ownership of facilities to be constructed or modified, this Approval to Construct/Modify shall be binding on all subsequent owners and operators. The applicant shall notify the succeeding owner and operator of the existence of this Approval to Construct/Modify and its conditions by letter, a copy of which shall be forwarded to the Regional Administrator and the State and local Air Pollution Control Agency.

VII. Severability

The provisions of this Approval to Construct/Modify are severable, and, if any provision of this Approval to Construct/Modify is held invalid, the remainder of this Approval to Construct/Modify shall not be affected thereby.

VIII. Other Applicable Regulations

The owner and operator of the proposed project shall construct and operate the proposed stationary source in compliance with all other applicable provisions of 40 CFR Parts 52, 60 and 61 and all other applicable federal, state and local air quality regulations.

IX. Paperwork Reduction Act

Any requirements established by this permit for the gathering and reporting of information are not subject to review by the Office of Management and Budget ("OMB") under the Paperwork Reduction Act because this permit is not an "information collection request" within the meaning of 44 U.S.C. §§ 3502(4) & (11), 3507, 3512, and 3518. Furthermore, this permit and any information gathering and reporting requirements established by this permit are exempt from OMB review under the Paperwork Reduction Act because it is directed to fewer than ten persons. 44 U.S.C. § 3502(4), (11); 5 C.F.R. § 1320.5(a).

X. Special Conditions

A. Certification

ENRON shall notify the EPA in writing of compliance with Special Conditions X.B and X.J and shall make such notification within (15) days of such compliance. This letter must be signed by a responsible representative of ENRON.

B. Air Pollution Control Equipment

ENRON shall install, continuously operate and maintain a water/fuel emulsification system to minimize emissions. Controls listed shall be fully operational upon startup of the proposed equipment and, prior to optimization testing, shall be operated at an injection rate of not less than 25% water to total water/fuel mixture by volume.

Upon completion of the optimization testing, EPA may set a new water/fuel injection ratio.

C. Performance Tests

1. Within 60 days of achieving the maximum production rate of the proposed equipment but not later than 180 days after initial startup of the equipment as defined in 40 CFR 60.2(o), and at such other times as specified by the EPA, ENRON shall conduct performance tests for NO_x, SO₂, CO, VOC, PM and opacity and furnish the EPA (Attn: AIR-5) a written report of the results of such test. The tests for NO_x, SO₂, CO, VOC, PM and opacity shall be conducted on an annual basis and at the maximum operating capacity of the facilities being tested. Upon written request (Attn: AIR-5) from ENRON, EPA may approve the conducting of performance test as a lower specified production rate. After initial performance tests and upon written request and adequate justification from ENRON, EPA may waive a specified annual test for the facility.
2. Performance tests for the emissions of SO₂, NO_x, CO, VOC, PM and opacity shall be conducted and the results reported in accordance with the test methods set forth in 40 CFR 60, Part 60.8 and Appendix A. The following test methods shall be used:
 - a. Performance tests for the emissions of SO₂ shall be conducted using EPA Methods 1-4 and 6C.
 - b. Performance tests for the emissions of PM shall be conducted using EPA Methods 1-5.
 - c. Performance tests for the emissions of NO_x shall be conducted using EPA Methods 1-4 and 7E.
 - d. Performance tests for the emissions of CO shall be conducted using EPA Methods 1-4 and 10.
 - e. Performance tests for the emissions of VOC shall be conducted using EPA Methods 1-4 and 25A.
 - f. Performance tests for opacity shall be conducted using EPA Method 9.

The EPA (Attn: AIR-5) shall be notified in writing at least 30 days prior to such test to allow time for the development of an approvable performance test plan and to arrange for an observer to be present at the test.

Such prior approval shall minimize the possibility of EPA rejection of test results for procedural deficiencies. In lieu of the above-mentioned test methods, equivalent methods may be used with prior written approval from the EPA.

3. For performance test purposes, sampling ports, platforms and access shall be provided by GPA on the diesel engine exhaust systems in accordance with 40 CFR 60.8(e).

D. Operating Limitations

1. The sulfur content in the fuel oil used to fire the diesel engine shall not exceed 2.0 percent by weight during periods when the wind is blowing off-shore and 1.19 percent when the wind is blowing on-shore. Off-shore and on-shore wind directions are defined in the protocol for fuel switching titled *Cabras-Piti Area Intermittent Control Strategy* and referenced in 40 CFR 69.11(a)(3)(i).
2. In order to ensure compliance with the 3-hour SO₂ NAAQS during on-shore wind conditions, ENRON must comply with one of the following conditions:
 - a. ENRON shall burn No.6 fuel oil in Piti Units 8 and 9 with a maximum sulfur content not to exceed 0.5 percent by weight if all other Cabras-Piti units are operating and burning 1.19 percent fuel; or
 - b. ENRON may operate and burn No. 6 fuel oil, with a maximum sulfur content of 1.19 percent, in both Piti Units 8 and 9 when 1) both Piti Units 4 and 5 are not operating, or 2) either Cabras Units 1 or 2 are not operating. Should only one of the two Piti 4 and 5 units be operating then one of the two Cabras steam units (1 or 2) must also be shutdown in order for Piti 8 and 9 units to operate; or
 - c. ENRON complies with an alternative fuel switching protocol approved by the Administrator of GEPA and by the USEPA.
3. ENRON shall install water meters and non-resetting fuel meters to monitor and record the fuel consumption and the percent of water-to-fuel mix being fired in the diesel engines. All information, including fuel sulfur content, fuel use, percent water in the fuel mix and hours of operation, shall be recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, calculation and record.
4. ENRON shall not operate any of the diesel engines below 50 percent of rated load except during periods of startup, shutdown, testing or maintenance.

E. Emissions Limits for SO₂

On and after the date of startup, ENRON shall not discharge or cause the discharge into the atmosphere from each diesel engine SO₂ in excess of 780 lbs/hr averaged over a three hour period.

F. Emission Limits for PM

On and after the date of startup, ENRON shall not discharge or cause the discharge into the atmosphere from each diesel engine PM₁₀ in excess of 168 lbs/hr averaged over a three hour period.

On or after the date of startup, ENRON shall not discharge or cause the discharge into the atmosphere from the engine exhaust stack gases which exhibit an opacity of 20% or greater for any period of periods aggregating more than six minutes in any one hour except during periods of startup or shutdown.

EPA may set a new lower allowable emission rate for the above emission limits after reviewing the performance test results required under Special Conditions C.

If the PM emission limit is revised, the difference between the PM emission limit set forth above and a revised lower PM emission limit shall not be allowed as an emission offset for future construction or modification.

G. Emission Limits for NO_x

On and after the date of startup, ENRON shall not discharge or cause the discharge into the atmosphere from each diesel engine NO_x in excess of the more stringent of 1,366 lbs/hr or 950 ppm at 15% O₂ averaged over a three hour period.

Subsequent to full scale operation of Unit No. 4, ENRON shall conduct an optimization study of the water emulsification system. The study shall consist of varying the percentage of water-to-fuel mix to determine the optimal NO_x removal efficiency, taking into account impacts on fuel efficiency and on SO₂ and CO emission rates. Upon completion of the study and after reviewing the performance test results EPA may set a new lower allowable emission rate and/or a new rate of water/fuel emulsification.

If the NO_x emission limit is revised, the difference between the NO_x emission limit set forth above and a revised lower NO_x emission limit shall not be allowed as an emission offset for future construction or modification.

H. Emission Limits for CO

On and after the date of startup, ENRON shall not discharge or cause the discharge into the atmosphere from each diesel engine CO in excess of 125 lbs/hr averaged over a three hour period.

EPA may set a new lower allowable emission rate for the above emission limits after reviewing the performance test results required under Special Conditions C. If the CO emission limit is revised, the difference between the CO emission limit set forth above and a revised lower CO emission limit shall not be allowed as an emission offset for future construction or modification.

I. Emission Limits for VOC

On and after the date of startup, ENRON shall not discharge or cause the discharge into the atmosphere from each diesel engine VOC in excess of 154 lbs/hr averaged over a three hour period.

EPA may set a new lower allowable emission rate for the above emission limits after reviewing the performance test results required under Special Conditions C.

If the VOC emission limit is revised, the difference between the VOC emission limit set forth above and a revised lower VOC emission limit shall not be allowed as an emission offset for future construction or modification.

J. Continuous Emission Monitoring

1. Within 180 days of the date of startup and thereafter, ENRON shall install, maintain and operate the following continuous monitoring systems (CEM) in the main stack:
 - a. A continuous monitoring system to measure stack gas NO_x concentrations. The system shall meet EPA monitoring performance specification (40 CFR 60.13 and 40 CFR 60, Appendix B, Performance Specifications 2 and 3).
 - b. A continuous monitoring system to measure stack gas volumetric flow rates. The system shall meet EPA performance specifications (40 CFR Part 52, Appendix E).
2. ENRON shall conduct weekly visible emission observations for each engine in accordance with 40 CFR Part 60, Appendix A, Method 9 or by use of a Ringlemann chart. For each period, two (2) observations shall be taken at fifteen (15) second intervals for six (6) consecutive minutes for each engine.
3. ENRON shall maintain a file of all measurements, including continuous monitoring systems evaluations; all continuous monitoring systems or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; performance and all other information required by 40 CFR 60 recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, maintenance, reports and records.

4. ENRON shall notify EPA (Attn: AIR-5) of the date which demonstration for the continuous monitoring system performance commences (40 CFR 60.13). This date shall be no later than 60 days after startup.
5. ENRON shall submit a written report of all excess emissions to EPA (Attn: AIR-5) for every calendar quarter. The report shall include the following:
 - a. The magnitude of the excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factors used, and the date and time of commencement and compilation of each time period of excess emissions.
 - b. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the engine exhaust systems. The nature and cause of any malfunction (if known) and the corrective action taken or preventative measures adopted shall also be reported.
 - c. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks, and the nature of the system repairs or adjustments.
 - d. When no excess emissions have occurred or the continuous monitoring system has not been imperative, repaired, or adjusted, such information shall be stated in the report.
 - e. Excess emissions shall be defined as any 3-hour period during which the average emissions of NO_x , as measured by the CEM exceeds the maximum emission limits set forth in Condition X.G.
6. Excess emission indicted by the CEM system shall be considered violations of the applicable emission limit for the purpose of this permit.
7. The quality assurance project plan used by ENRON for the certification and operation of the continuous emissions monitors, which meets the requirements of 40 CFR Part 60, Appendix F, shall be available upon request to EPA.

XI. Agency Notifications

All correspondence as required by this Approval to Construct/Modify shall be forwarded to:

- A. Director, Air Division (Attn: AIR-5)
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

- B. Administrator
Guam Environmental Protection Agency
P.O. Box 22439 GMF
Barrigada, Guam 96921